



Center

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SUNSPOT BULLETIN

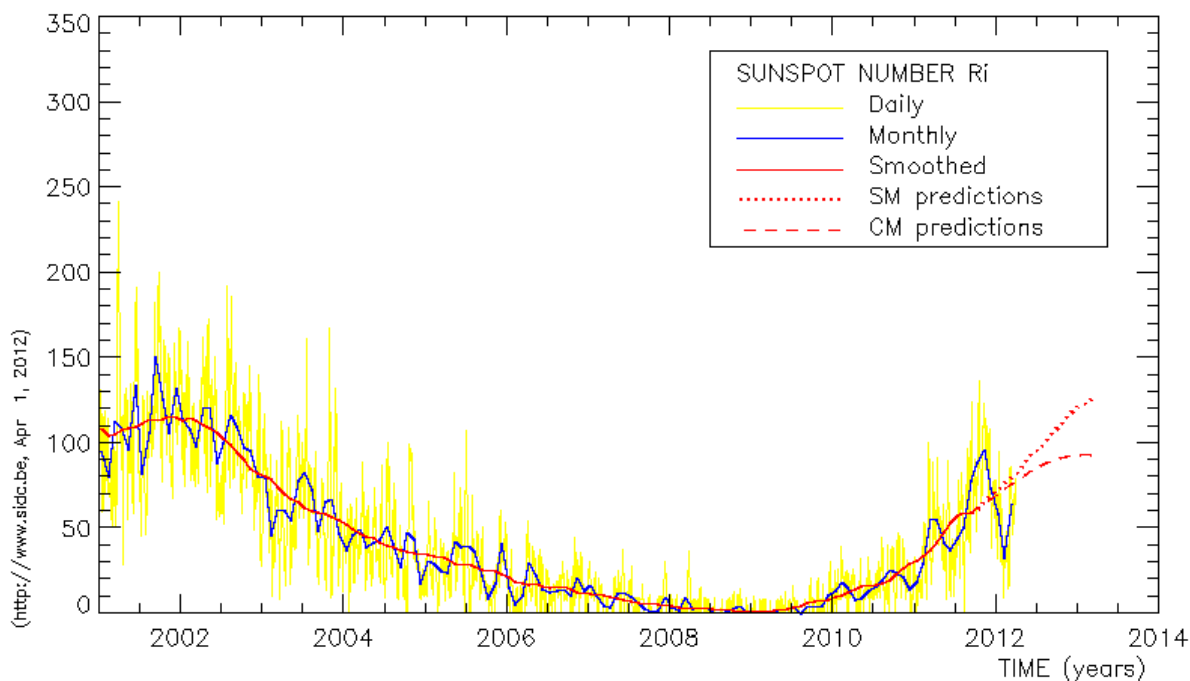
2012

n° 3

Provisional international and normalized hemispheric daily sunspot numbers for March 2012

computed at the *Royal Observatory of Belgium* using observations from an international network with the *Locarno Specola Solare* as reference station.

Date	R' ₁	R' _N	R' _S
1	18	18	0
2	20	20	0
3	47	35	12
4	64	46	18
5	80	46	34
6	85	51	34
7	79	53	26
8	72	48	24
9	82	54	28
10	77	58	19
11	86	63	23
12	86	61	25
13	71	55	16
14	63	51	12
15	65	43	22
16	63	34	29
17	65	20	45
18	46	10	36
19	55	22	33
20	64	25	39
21	57	15	42
22	52	19	33
23	53	29	24
24	70	36	34
25	66	31	35
26	65	29	36
27	62	22	40
28	65	20	45
29	79	22	57
30	66	21	45
31	66	35	31
Monthly mean	64.2	35.2	29.0
Cooperating stations	70	66	66



Predictions of the monthly smoothed Sunspot Number
using the last provisional value, calculated for September 2011: 59.5 ($\pm 5\%$)

		SM	CM		SM	CM		SM	CM		
2011	Oct	61	62	2012	Apr	84	78	2012	Oct	110	91
	Nov	66	65		May	88	81		Nov	114	92
	Dec	70	67		Jun	93	84		Dec	119	93
2012	Jan	73	70		Jul	97	86	2013	Jan	122	93
	Feb	76	73		Aug	101	88		Feb	124	94
	Mar	80	76		Sep	105	89		Mar	126	93

SM : SIDC classical method : based on an interpolation of Waldmeier's standard curves. The estimated error ranges from 7% (first month) to 35% (last month)

CM : Combined method : the combined method is a regression technique coupling a dynamo-based estimator with Waldmeier's method of standard curves, due to K. Denkmayr.

Ref. : **K. Denkmayr, P. Cugnon**, 1997 : "About Sunspot Number Medium-Term Predictions", in "Solar-Terrestrial Prediction Workshop V", eds. G.Heckman et al., Hiraiso Solar Terrestrial Research Center, Japan, 103

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FTP anonymous : omaftp.oma.be, directory: dist/astro/sidcdata
Web: http://sidc.oma.be, "Sunspots" section in sidebar.

NOTE TO THE OBSERVERS: the new individual K scaling coefficients have been updated for 2011. You can access them for your station and other stations by logging into the usual WOLF data input page, then selecting the "Products New K values" item. To display a full table, then select sub-item "K index values".

S.I.D.C. SUMMARY OF THE URSIGRAMS

Date	R' _i	PPSI	600	2800	COS	SFI	XI	Ak	SEA
29	14	18	-	102	////	0	0/0	9	
1	18	14	-	103	////	10	0/0	21	
2	20	17	-	108	////	0	1/0	11	
3	47	17	-	116	////	2	0/0	10	
4	64	51	-	120	////	21	1/0	14	
5	80	113	-	132	////	141	3/1	12	
6	85	167	-	138	////	240	7/0	12	
7	79	269	-	136	////	111	0/2	37	
8	72	208	-	140	////	4	0/0	28	
9	82	138	-	146	////	1	1/0	61	
10	77	999	-	149	////	4	1/0	24	
11	86	104	-	131	////	1	0/0	10	
12	86	59	-	115	////	2	0/0	27	
13	71	64	-	141	////	11	1/0	10	
14	63	42	-	119	////	13	1/0	8	
15	65	110	-	111	////	12	1/0	39	
16	63	29	-	99	////	5	0/0	34	
17	65	27	-	102	////	1	1/0	34	
18	46	29	-	102	////	2	0/0	16	
19	55	25	-	102	////	6	0/0	12	
20	64	21	-	100	////	1	0/0	6	
21	57	13	-	100	////	2	0/0	8	
22	52	10	-	102	////	1	0/0	11	
23	53	12	-	105	////	1	1/0	6	
24	70	24	-	103	////	3	0/0	14	
25	66	25	-	101	////	14	0/0	4	
26	65	36	-	102	////	15	0/0	4	
27	62	47	-	106	////	2	0/0	19	
28	65	54	-	107	////	2	0/0	16	
29	79	60	-	112	////	2	0/0	4	
30	66	45	-	111	////	0	0/0	6	
31	66	27	-	110	////	0	0/0	6	

- R'_i** : provisional international sunspot numbers from the S.I.D.C.
- PPSI** : prompt photometric sunspot index from the S.I.D.C. in 10^{-5} w/m^2 : the quantity to be subtracted from the mean solar constant to account for the sunspot contribution.
- 600** : 600 Mhz solar flux from the station at Humain (Belgium).
- 2800** : 2800 Mhz solar flux from Ottawa (origin : Ursigrams - UGEOI). The 10.7cm Flux data are a service of the National Research Council of Canada.
- COS** : thousands of the cosmic ray counts (origin : Ursigrams - UCOSE Terre Adélie).
- SFI** : From October 1992, Solar Flare Index from the S.I.D.C. (origin : Ursigrams – UGEOR, evaluation : $1 \times \text{Sn} + 10 \times "1" + 100 \times ">1"$).
- XI** : X-flares index from the Ursigrams (M-flares/X-flares) (origin : Ursigrams – UGEOR, UGEOI).
- Ak** : geomagnetic index from Wingst, Germany (origin : Ursigrams).
- SEA** : sudden enhancements of atmospherics from Uccle & Humain (Royal Observatory, Belgium).

Note that due to problems of interferences saturating our receivers, no SEA could be detected this month.

SOLAR PHYSICS DEPARTMENT

UCCLE DAILY PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR MARCH 2012

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI 10-5	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
3	1115	5	18	68	52	16	11	7.5	3	OL
6	930	5	60	110	61	49	34	83.5	2	SV
8	800	3	39	69	50	19	69	86.2	1	SV
9	800	3	52	82	58	24	64	83.4	2	SV
11	845	6	35	95	70	25	0	58.0	2	SV
12	930	6	43	103	77	26	0	43.7	3	OB
14	1030	4	36	76	64	12	36	25.8	2	OB
15	830	5	28	78	53	25	67	10.0	3	OB
16	1120	7	32	102	50	52	78	12.5	2	OB
17	950	6	21	81	25	56	28	6.4	2	OB
18	1215	4	23	63	12	51	12	18.0	2	OB
19	930	5	24	74	27	47	11	19.7	3	FC
20	825	7	20	90	37	53	12	16.1	3	FC
21	850	6	13	73	22	51	27	8.5	3	FC
22	850	4	14	54	11	43	0	6.6	3	FC
23	805	6	11	71	37	34	11	5.6	3	FC
24	755	7	24	94	43	51	24	27.4	4	FC
25	815	6	32	92	45	47	11	21.2	3	FC
26	910	6	30	90	45	45	56	33.4	3	OL
27	710	7	34	104	44	60	55	40.1	3	OL
28	738	6	32	92	36	56	66	43.4	3	OL
29	725	7	34	104	31	73	46	51.6	3	OL

The relative mean sunspot number is 84.8.

NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS $U'=K'U$ FOR MARCH 2012

$K'=0.811$ (*)

1	***	7	***	13	***	19	60	25	75
2	***	8	56	14	62	20	73	26	73
3	55	9	67	15	63	21	59	27	84
4	***	10	***	16	83	22	44	28	75
5	***	11	77	17	66	23	58	29	84
6	89	12	84	18	51	24	76	30	***
								31	***

The normalised relative monthly mean sunspot number is 69.

(*) K' is the mean of the monthly K' for the last five years.

The Sun has been observed 22 days on 31 possible.

UCCLE OBSERVATIONAL MAJOR SUNSPOT GROUPS FOR MARCH 2012
E AND F BRUNNER'S TYPE GROUPS

Uccle Nø	East Limb		Date and type			West Limb	
	Date		1st obs	CMP	Last obs	Date	
2-2121	3	2.1	3 D	3 8.9	15 J	3	15.6

PROBABLE RETURN OF MAJOR GROUPS FOR APRIL 2012

Nø	New East Limb	New CMP	New West Limb
2	3 30.3	4 6.1	4 12.8